

PROCEEDINGS
OF THE
ZOOLOGICAL SOCIETY OF LONDON.

January 8, 1850.

William Yarrell, Esq., Vice-President, in the Chair.

The following papers were read :—

1. CONTRIBUTIONS TO THE KNOWLEDGE OF THE ANIMAL OF
NAUTILUS POMPILIUS. BY J. VAN DER HOEVEN.

There are hitherto but three original figures of the animal of *Nautilus Pompilius*. The first is that of Rumphius, in his 'Amboinsche Rariteitkamer' (No. xvii. at p. 62); the second that of Prof. R. Owen in his accomplished 'Memoir on the Pearly Nautilus' (London, 1832, pl. 1); the third, drawn by Mr. Laurillard, was given by Prof. Valenciennes in the 'Archives du Muséum d'Hist. natur.,' ii. 1841, pl. 8.

The figure of Rumphius could only be deciphered after the discovery of a new specimen. As Prof. Owen has observed, the animal is represented in that figure in an inverse position. Guided by that observation, it is possible to explain some parts in that enigmatical figure, but many obscurities still remain, and the whole gives the impression of a drawing made by recollection, and after the doubtful suggestions of a discomposed memory. This seems still more probable, because the text informs us (p. 61) that the figures to which the indications of the description allude, have been lost.

The animals represented by Prof. Owen and Valenciennes were detached from the shells before they were presented to those distinguished cultivators of comparative anatomy and structural zoology. This circumstance explains some imperfections in the figures given by both. Prof. Owen, for instance, gives an incorrect form to that production of the mantle which covers the convex part of the shell's circumvolution projecting in the aperture, or to the part which the author calls "the dorsal fold" (see his pl. 1 *b*); the superior free

NO. CCI.—PROCEEDINGS OF THE ZOOLOGICAL SOCIETY.

margin of the mantle is lower than it ought to be, as it conceals in the natural state a great part of the funnel and the inferior half of the eyes. In regard to the last circumstance, the drawing of Laurillard given in M. Valenciennes' paper is more correct; but in other particulars it is deficient, chiefly because the soft part of the integuments which forms the visceral sac was torn off and wholly wanting. It ought to be observed also, that those two figures represent the animal replaced in a shell of the same species indeed, but not its own.

I suppose then that it may be perhaps of some interest to publish some drawings* I made, chiefly after two specimens, one of which was kindly presented to me in 1848 by Prof. Reinwardt; the other I received lately from our settlements in the East, by the kind exertions of His Excellency Mr. T. C. Baud, formerly His Majesty the King of the Netherlands' Minister for the Colonial Department.

The first figure (1) represents the animal from the left side in its own shell, which has been opened with a file at such a height, that the whole last chamber was visible, together with a part of the three following compartments. The hood (*a*), composed according to Prof. Owen by the conjunction in the mesial line of the two superior, excessively large digitations, covers with its projecting margin the superior surface of the pedunculated eye (*b*). The inferior half of the eye is concealed by the superior margin of the mantle, which covers also the greatest part of the digitations or lateral processes of the head (*c, c*). The extremity of the funnel (*d*) is visible and uncovered, the rest being contained in the anterior part of the mantle. There is no perforation or excision at this part of the mantle †, but the margin of it is entire and slightly convex.

The mantle (*f, f, f', i*) has its anterior part of a more thick and fibrose texture and a yellowish colour; the posterior part (*i*) forms a thin and nearly transparent membranous sac, containing the different viscera. The free superior margin of the mantle ascends behind the hood (*f'*) and forms the dorsal fold of Prof. Owen's memoir; but at the side view only a small portion of this fold is visible. Beneath the posterior part of the hood, the mantle offers on each side a large aponeurotic flat piece (*g*), of a bluish white colour and a kidney-like shape, being convex at its anterior side and somewhat concave at the posterior border. This plate is the posterior insertion of a strong muscular mass—the great muscle of the shell—which goes from this attachment in an oblique course, converging with that of the opposite side, to its anterior termination at the cartilage of the head. From this oblong patch arises a narrow aponeurotic stripe, both at the superior and at the inferior extremity of it. The oblong plate may be considered as an expansion and development of this band, which, encircling the whole mantle, separates its posterior soft part or the visceral

* The drawings, being on too large a scale for this work, will be published in the Transactions of the Society, vol. iv. Pl. 5, 6, 7, 8. The references are to those plates.—D. W. M.

† Professor Owen speaks of a large aperture through which the funnel passes. (Memoir on the Nautilus, p. 9.)

sac (*i*) from its free and thicker anterior part. The thin and membranous posterior part of the mantle is of a bluish white colour, but being imperfectly transparent, it seems to be dark at all places where it covers the bulky liver, whose colour is a dark red-brown, or chocolate-like purple. At the inferior part of the free portion of the mantle is a convexity (*h*), where lies a glandular laminated organ, secreting, as it seems, a covering to the eggs, and which projects at this place, being partly visible through the integuments. This glandular mass connected with the female generative system is situated behind the gills, at the inner surface of the mantle.

A more complete idea of the external form of the animal may be had by comparing the two following figures. Fig. 2 represents the animal taken out of the shell from a dorsal aspect. The circumference appears oblong, and of an irregular oval form. The whole is divided into two chief parts; the first is the hood, exactly filling up the shell's aperture*; the second part was concealed in the lower and posterior part of the terminating chamber of the shell. The dorsal fold (*f'*) appears now wholly visible; it forms a thin lamellar production of the mantle, and ascends to the protuberant internal labium or anfractus of the revolved shell. Hence the upper surface of this fold is excavated, forming the exact counterpart of the shell's protuberance. Under that fold is a smaller plate of nearly the same form, but adherent to the posterior declivous surface of the hood, and only free at its circumference. This plate is of an aponeurotic texture and a white colour: at both sides it is united to the dorsal fold, and below it seems to have an intimate connexion with the two side parts of the funnel, and indeed to be a continuation of those parts. The dorsal or superior part of the aponeurotic band, which forms, as we have said already, the continuation of the oblong side-plate (fig. 1 *g*), is here visible at *g, g*. Three small longitudinal bands or tendinous inscriptions (*h, h, h*) seem to give some firmness to the dorsal part of the abdominal portion of the mantle. Near the posterior end of this visceral sac, nearer however to the superior surface of it, is the beginning of the siphon (*j*); it seems nearly superfluous to say that this siphon is a tubular production of the visceral part of the mantle, protected by a calcareous covering, and penetrating by the central perforation of the several septa in all the following compartments of the shell.

At the inferior surface (fig. 3) a part of the funnel is visible in the middle of the digitations of the head. The inferior face of those digitations is of a white colour, contrasting with the brown and dark colour of the hood and of the superior surface of the digitations which are nearest to it. The free inferior and anterior margin of the mantle appears rounded and somewhat convex; it conceals the basal part of the funnel and of the appendages of the head.

More instructive is an inferior view of the animal if the mantle has

* It may be allowed to hazard here the opinion, that the two juxtaposed fossil shells, known by palæontographs as *Aptychus*, were two shelly supports of the hood of *Ammonites*, extinct Cephalopods not very different in structure from the *Nautilus*, and belonging, like that genus, to Prof. Owen's tetrabranchiate group.

been removed or reflected backwards; in this manner the branchial cavity is visible (fig. 4).

The two overlapping sides of the funnel form a striking particularity of the structure of the Nautilus. It is interesting that the embryo in the dibranchiate group, as we learn from Dr. Kölliker's observations*, shows the funnel composed in the beginning of two lateral separate parts. The embryonic condition in the dibranchiate Cephalopods proves thus to be a persistent structure in the tetrabranchiate group.

Between the basal part of the second pair of gills the anal aperture is visible. This part has been misrepresented by Prof. Valenciennes. It seems that a longitudinal fold connecting the integuments of the viscera with the two large shell-muscles was disrupted in his specimen, and that the author believed this to be the rectum. The oviduct in this supine position is situated at the left side, before the anus, and terminates with a transverse bilabiated and protuberant aperture or vulva. [Consequently, when the animal is in its natural position in the shell, the termination of the oviduct lies at the right side.]

There are three little slits on each side at the roots of the branchiæ. The first pair of those apertures is situated at the anterior surface of the first branchia, near the posterior margin of the large shell-muscle. Between the first and second branchiæ are the two other slits, very near to each other, and at the outward side of them is a little depressed papilla, affixed to the posterior surface of the root of the first branchia. The first and the last slits are the exterior openings of two lateral blind sacs, containing the follicular appendages of the branchial arteries; the second slit communicates with the pericardium†. At the first slit I once found a calcareous reddish-white and friable concrement; I believed it to contain uric acid, but the chemical inquiry of my friend Prof. Van der Boonchesch has not confirmed my supposition.

Behind the anus there are on each side two small and depressed caruncles, very similar to that mammillary eminence or papilla we have seen at the root of the first branchia. External to those caruncles and behind them is a series of small orifices, not unlike to the openings of the Meybomian follicles on the human eyelids. These are the emunctories of the glandular organ, for the secretion of the covering matter of the ova.

* *Entwicklungsgeschichte der Cephalopoden.* Von Dr. A. Kölliker; Zurich, 1843, 4to, p. 41 etc.

† The three pairs of openings have been first observed by Prof. Valenciennes. This point of the anatomy of the Nautilus has been chiefly elucidated by the observations of my friend Prof. W. Vrolik (*Tijdschrift voor de natuurkundige Wetenschappen, uitgegeven door de Eerste Klasse van het Koninklijk-Nederlandsche Instituut*, ii. 1849, p. 312-315). Prof. Owen describes in his memoir but one of those openings, and it is therefore questionable what opening he speaks of. It seems however to me to be the second, because Prof. Owen describes the mammillary eminence which is nearest to this slit, and chiefly because the author observes that the orifice "conducts from the branchial cavity to the pericardium." (*Memoir on the Nautilus*, p. 27.)

The head still requires some further description. In order to give a more correct idea of the mutual superposition of the numerous digitations and processes which exist in the Nautilus, instead of the eight or ten arms of the dibranchiate Cephalopods*, I have represented them from the left side, in three comparative figures, so as they follow each other from the exterior surface of the head to the interior covering of the mandible (see fig. 5-7).

In the first place (fig. 5), the mantle *f* being reflected, the hood (*a*), the different digitations (*c, c*), and the funnel (*d*), are visible. The large pedunculated and perforated eye (*b*) has two tentacles (ophthalmic tentacles, Owen), one before its anterior margin, the other behind, which are however not distinctly seen without reclining the surrounding parts, and bending the eye-peduncle*. Only a few tentacles are protruded from their sheaths, and partly visible. I never saw them protruded to such an extent as in M. Laurillard's figures. The number of these digitations seems not to be exactly the same in all specimens. Instead of nineteen digitations on each side, as in Prof. Owen's specimen, I twice found only eighteen. M. Valenciennes found only seventeen in his specimen. That the hood is formed according to the ingenious supposition of Prof. Owen, by two large digitations conjoined along the mesial line, has been mentioned above. The hood indeed contains two tentacles, and in this manner the whole number of exterior or digital tentacles varies from eighteen to twenty on each side.

The second layer of tentacular processes is brought into view by cutting off the hood and the external digitations. Fig. 6 gives a view of this dissection. In this figure *b* is the eye, *d* the funnel, as in the foregoing figure; *c, c* are the cut parts of the tentacles contained in the digital processes. The layer now visible is formed by that set of tentacular sheaths which Prof. Owen calls the *external* or superior labial processes (fig. 6 *k, k*). For a reason explained in the following part of my paper, I would be disposed to prefer the name of *external labial process* to that of *superior*. The membrane covering the mandibles and the muscular mass of the mouth, and terminating in the fringed lip encircling those parts, is to be seen at a little distance above this layer (at *m*), and shows numerous circular folds. Beneath this layer a small part of the third layer (*l*) is visible.

This third layer is brought into view by removing the second (see fig. 7). In this figure *k, k* are the cut parts of the tentacles of the external labial process, and *l* is the *internal* or inferior *labial process* of the left side. The folded membrane *m* is now almost wholly visible. The internal labial processus consists of a flattened stalk, which ascending expands in a compressed paddle, whose superior margin is straight and perforated for the exertion of the tentacles. There is some likeness to a glove whose fingers are cut off. The description of Rumphius mentions all the digitations and pro-

* Under the eye is a part, first noticed by Valenciennes, a little hollow caruncle, with bilabiated aperture, which seems to be the true organ of smell (see fig. 8). It is only visible by bending the eye behind and above, and adheres to the root of its stalk.

cesses as superimposed flaps, each in shape of a child's hand*. This comparison answers chiefly to the internal labial processes.

The number of tentacles in those two pair of labial processes is not exactly the same in different specimens, nor even in the same specimens at both sides. The description of Rumphius gives sixteen tentacles to the external labial processes, but does not mention their number in the internal processes. Prof. Owen found twelve tentacles, Prof. Valenciennes thirteen in each of those four processes. In the external processes Prof. W. Vrolik observed twelve tentacles on each side, as was observed also by me. The internal processes seem to have in general a somewhat larger number; Prof. Vrolik observed in this layer fourteen on each side; I found also fourteen at the left and sixteen at the right side. The external labial processes are united in the mesial line at the ventral side above the funnel by a membrane with numerous fine folds on the inside; the internal approach here nearer to each other and are united in a similar manner; the commissure presents on the inside, towards the dorsal surface, seventeen or eighteen eminent, compressed, longitudinal folds, like the parallel ridges in the olfactory cavity of Fishes. This part is, according to Prof. Owen's opinion, the organ of smell; but I believe that those folds are only rudimental digitations completing the circle of the internal labial processes, and similar to the more numerous and smaller folds of the external circle, or even to the fringed margin of the lip round the mandibles.

In respect to the observation of Valenciennes concerning the mandibles, it is perhaps not unnecessary to note that I saw them in different specimens always covered with a calcareous white matter, as has been observed in the first accurate description of the animal by my eminent friend Prof. Owen.

The sexual difference of the *Nautilus* requires still further elucidation. Prof. Owen's description was relative to a female, and also all the other specimens observed by subsequent authors, or preserved hitherto in the museums, seem to be of female specimens. Hence it seems to follow that males are rarer; a similar circumstance of unequal number has been noted in many other animals of several classes. The recent observations of K lliker and some other authors having elucidated the true nature of that abnormal animal form, not unlike to separated arms of Cephalopods, found in the shell of the (always female) *Argonauta*, and formerly described as a genus of worm under the name of *Hectocotyle* by Cuvier, would lead us to expect similar males of the *Nautilus* living like parasites with the female in her shell. There exists however not the least indication in the different memoirs of Owen, Valenciennes and Vrolik, that such parasites were present. I can say that in *Nautilus* the sexual difference is not so great, and that the male lives in a shell like the female. I was fortunate enough to observe one specimen of a male, which was kindly presented to me by my colleague at the Faculty of Sciences of the Leyden University, the Professor of Botany, W. H. de Vriese. The differences it showed

* "Zijnde ieder lap gefatzoeneerd als een hand van een kind." (Amboinsche Rareteitkamer, p. 60.)

in the conformation of the head may be ascribed either to sexual difference or to monstrosity. This must remain unsettled till another male can be observed; but I incline to the first opinion, a similar aberration of structure not having been observed in any of the hitherto dissected females.

I have already described this male in a former paper*, but I believe it will not be superfluous to give here the translation of the chief matter of my Dutch memoir on this specimen, together with some additional remarks and corrections.

At the inner surface of the circle of digitations, which were eighteen at each side, without the hood, there was a prolongation of the integuments rising up to another more internal circle. This prolongation unites at the ventral side by a free and thin margin to the connecting basal part of the digitations. At the inner surface of this connexion of the external digitations, there are many transverse dimples parallel to the transverse margin of this commissure: many little holes give a reticulated appearance to this part. The prolongation becomes thicker and expands on each side in a processus divided in eight digitations of different size, including each a tentacle, similar to those contained in the external digitations of the head, but smaller, as usual in other specimens. On account of their place, those processes seemed first to me to be analogous to the *superior labial processes* of Prof. Owen's memoir, because they are situated at the dorsal side, and consequently I described them under that name in my former publication; but as they are internal or nearer to the mandibles than the other pair of similar processes, I now believe them to be analogous to the inferior labial processes in the female, notwithstanding their superior position. The fold of the integuments connecting those processes at the central side to another in the mesial line divides in two plates; the exterior adhering to the commissure of the external digitations already described; the interior united to the covering of the mandibles. Between those two plates a pair of depressed cushion-like parts is placed, coming in contact to another in the middle, and nearly wholly adherent at their inferior surface to the inner plate. They have nearly 8 lines in length and $4\frac{1}{2}$ in breadth. Their free, superior and internal margin is divided by incisions in ten or eleven small tetragonal parts; the right part having eleven, the left ten of those digitations. The relative position seems to prove them to be analogous to the folds between the internal labial processes, which are considered as the olfactory apparatus by Prof. Owen. I believe they afford an additional argument against this opinion, because they are doubtless only rudimental digitations.

Beneath those internal labial processes there is at each side outwards to them a fold in the inner surface of the external circle of digitations. At the right side a processus is exerted from this fold;

* Tijdschrift voor de natuurkundige Wetenschappen, uitgegev. door de eerste Kl. v. h. Koninkl.-Nederl. Inst. i. 1848, p. 67-75. A short abstract of this description was communicated by me at the Oxford Meeting (1847) of the British Association, and is inserted in the Report of the Seventeenth Meeting of the British Association; London, 1848; Transactions of the Sections. p. 77.

it consists of the conjunction of the sheaths of four tentacles; three of those tentacles are placed on a common flat expansion; the fourth is contained in a separate slip, placed beneath the three other tentacles. At the left side, instead of this external labial process, there was a great conoid body, the length of which was nearly $2\frac{1}{2}$ inches; this part was laterally compressed; at the basis its measure from the dorsal to the ventral side was found to be 1 inch 10 lines; from the right to the left side only 1 inch. This part was proved to me by dissecting it to be formed by the union of four unusually developed tentacular slips, one of which was shorter and more free, the three other chiefly composing the singular body. This part occupied a great space in the interior of the circle, which was formed by the external tentaculiferous digitations of the head, and perhaps its great development may have been the cause of the more imperfect condition of the other three labial processes.

I regret that this specimen was in a bad state of preservation; its abdominal sac being dilacerated and the viscera destroyed by maceration. Hence I am not able to give a description of the male organs of generation, but that the specimen was a male seems to me unquestionable. At the same place where in other specimens the vulva adheres to the ground of the branchial cavity, was a short conic part, evidently the penis, somewhat bent at the basis towards the ventral side, having an obtuse and perforated top. A very narrow canal was found to go from this aperture to the root of the penis, and to expand there in a pouch, of a firm parchment-like texture. This bladder contained a conglobate tube of a brown colour, having a little more than 1 line in diameter. The length of this tube could not be determined, because, by any attempt to unravel it, it broke into pieces. Microscopic investigation proved that this tube was formed by two membranes, the external transparent, the inner thicker, coloured, brittle, and offering circular stripes or fibres. In the interior of the tube there was a thread or band, coiled up in a spire with close circumvolutions, like the spiral fibre of the *tracheæ* of insects. This fibre was not of exactly equal broadness in its whole extent; its broadest parts had a diameter of nearly 1-48th of a line. This fibre seemed composed of an external transparent membrane, including an internal part of a yellowish brown colour. Between the fibre and the tube containing it were observed several free microscopic parts; some greater, of a brown colour, oblong or navicular; some smaller, uncoloured, and still of different size. How different this conglobated tube, contained in the spermatic vesicle, may be from the *Needham-machines* or spermatophores of other Cephalopods, I still believe that we ought to consider it as a similar sperma-containing apparatus. It seems highly desirable that a travelling naturalist may have the opportunity of observing the male Nautilus in a recent state.

Imperfect as they are, I trust those last observations to be still of some interest for comparative anatomy, as giving the first account of that which seems now to be the chief *desideratum* in our knowledge of the Nautilus, the disposition and structure of the male generative apparatus.

EXPLANATION OF THE FIGURES.

(Published in the Transactions Z. S. vol. iv. Pl. 5-8.)

- Fig. 1—8 belong to the female *Nautilus*; fig. 9—14 to the male specimen, which is described at the end of my memoir.
- Fig. 1. A female *Nautilus* in its shell, from the left side.
- Fig. 2. The same specimen seen from above, and taken out of the shell.
- Fig. 3. The same, from below.
- The following letters indicate the same parts in those three figures: *a*, the hood; *b*, the eye; *c c*, the digitations; *d*, the funnel; *f f f' i*, the mantle; *i'*, its visceral part; *f'*, the dorsal fold of the mantle; *g*, the aponeurotic insertion of the shell-muscle.
- In figs. 1 and 3, *h* indicates the place where the laminated gland is situated. In fig. 2, *h h h* are three aponeurotic inscriptions on the visceral sac; *j* is the siphon.
- Fig. 4. Branchial cavity and funnel of the same. *f*, funnel; *g*, mantle, reflected; *e e*, shell-muscles; *h h*, first pair; *h' h'*, second pair of branchiæ; *a*, anus; *b*, vulva; *c*, caruncle at the root of the first branchia; *d*, two pair of similar papillæ at the bottom of the branchial cavity. 1, 2, 3, three pair of slits (at the left side of the figure the first is to be seen; the two others are represented on the right side of the figure).
- Fig. 5. Side view of the head, the mantle *f* being reflected: *a*, hood; *b*, eye; *c c*, digitations; *d d*, funnel.
- Fig. 6. The same, after removing the digitations; *c c*, transverse sections of their tentacles; *k k*, external labial processes; *l*, internal ditto; *m*, membrane covering the mandibles.
- Fig. 7. The same, after removing the external labial processes, cut off at *k k*.
- Fig. 8. Caruncle at the peduncle of the eye; organ of smell, *a*.
- Fig. 9. Head of a male *Nautilus* seen from above; the hood has been divided by a longitudinal section; *g g* are the internal labial processes; below them, at the right side, is placed and partly visible at *i*, the external labial processus. The place of it occupies at the left side a large conoid body, *a*; *m m* is the fringed lip inclosing the mandibles.
- Fig. 10. The conoid body of the foregoing figure, separately seen from the inner surface, together with the incumbent internal labial processus of the left side.
- Fig. 11. Lateral view of the internal labial processus of the right side, with the mandibles and the surrounding lip.
- Fig. 12. View of the inferior surface of the muscular mass of the mouth, with the two cushion-like incised bodies, representing here the folds between the internal labial processes.
- Fig. 13. Penis. B, a longitudinal section of it.
- Fig. 14. A portion of the circumvolved spermatophore or tube contained in the bladder at the basis of the penis.

Leyden, 8 Dec. 1849.

2. DESCRIPTION OF A NEW GENUS OF BATRACHIANS FROM SWAN RIVER. BY DR. H. SCHLEGEL, CURATOR OF THE ROYAL ZOOLOGICAL MUSEUM, LEYDEN. (EXTRACTED FROM A LETTER TO J. E. GRAY, ESQ.)

“The following notice I hope is sufficient to give an idea of a new Toad which was discovered at Swan River by Dr. Pries:—

“*MYOBATRACHUS*, n. g.

“Tongue small; no teeth except two small horizontal fangs in the intermaxillary bone; eustaehian tubes separated, opening behind the eyes. Legs short, enveloped at the base in a duplicature of the skin

of the sides of the body. Fingers 4, the second longest; toes 5, cylindrical, tapering, not armed. Eyes lateral, middle-sized.

“MYOBATRACHUS PARADOXUS.

Above brownish grey, beneath greyish.

Hab. Australia; Swan River. Mus. Leyden.

The Prince of Canino has made for this animal a family, which he has named MYOBATRACHIDÆ.”

Mr. Gray observed, that a toad which he described and figured in Capt. Grey's Travels in Australia, under the name of *Breviceps Gouldii*, agrees with the animal described by Dr. Schlegel in all particulars, and especially in possessing the two horizontal horny appendages on the intermaxillary, which Dr. Schlegel described as horizontal fangs; they are partly sunk into the integument of the palate. Admitting the propriety of the proposed generic distinction, the animal will therefore now stand in the catalogues as *Myobatrachus Gouldii*.

The presence of the teeth in the intermaxillary separates this animal from the *Breviceps* of South Africa.

3. DESCRIPTIONS OF SOME APPARENTLY NEW SPECIES OF LONG-CORN COLEOPTERA IN THE COLLECTION OF THE BRITISH MUSEUM. BY ADAM WHITE, F.L.S., ASSISTANT IN THE ZOOLOGICAL DEPARTMENT, BRITISH MUSEUM.

(Annulosa, Pl. XIII.)

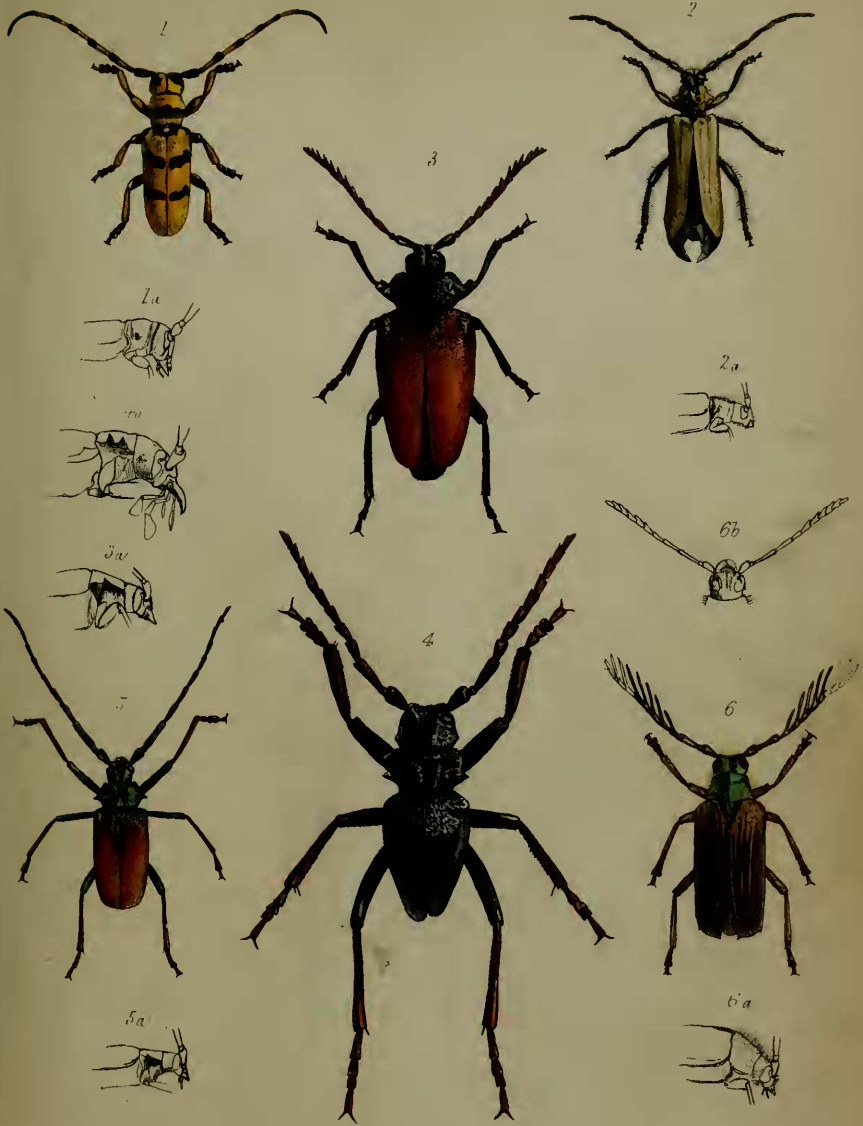
PRIONACALUS ATYS. Pl. XIII. fig. 4.

In the 'Annals and Magazine of Natural History,' vol. xv. p. 108, I have described under the name of *Prionacalus Cacicus*, a curious genus from Mexico, allied to *Psilidognathus*, G. R. Gray. I regarded the two specimens as male and female of the same species, but it would seem that they are both males, and as they are considerably different, must be different species; what was deemed the male may retain the name *Prionacalus Cacicus*; it is figured on plate 8. fig. 1. of the above volume. The other specimen may be named *Prionacalus Iphis*; it is figured on plate 8. f. 2. Since the above we have received a third species from the Andes of Peru, where it was found by Prof. Jameson of Quito; the following short specific characters may distinguish the three:—

P. CACICUS.

Head behind the eyes without a prominent spine, the lateral margin behind, produced into a slight process directed backwards; a strong crested ridge over each eye, at the end directed outwards; antennæ, palpi and legs rufous, antennæ blackish at the base; jaws, excepting at the end and on the edges (where they are smooth) roughly punctured: head, thorax and elytra, at the base, somewhat roughly punctured, the elytra more delicately punctured towards the end.

Hab. Mexico.



1. LAMIA (CEROSTERNA) TRIFASCIELLA 2. BIMIA BICOLOR 3. COLOCOMUS MOROSUS.
 4. PRIONACALUS ATYS 5. PYRODES TENUICORNIS 6. CALLOCTENUS PULCHER.





TRICHOPLATA VITTATA 2 3 CALIGATUS ANGASTI 4 5 PALLARIA LAMBERTELLA

